



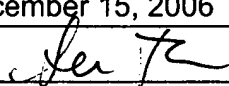
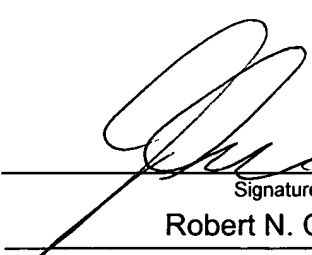
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PTO/SB/33 (07-05)

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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional)	
<p>I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]</p> <p>on <u>December 15, 2006</u></p> <p>Signature <u></u></p> <p>Typed or printed name <u>Amelia Tauchen</u></p>		Application Number	Filed
		10/692,578	10/24/2003
		First Named Inventor	
		Se-Ho Lee	
		Art Unit	Examiner
		2814	Long Pham
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p> <p>I am the</p> <p><input type="checkbox"/> applicant/inventor.</p> <p><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)</p> <p><input checked="" type="checkbox"/> attorney or agent of record. <u>44,635</u> Registration number</p> <p><input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34</p> <p> Signature <u>Robert N. Crouse</u> Typed or printed name <u>919-854-1400</u> Telephone number <u>December 15, 2006</u> Date</p> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.</p> <p><input checked="" type="checkbox"/> *Total of <u>1</u> forms are submitted.</p>			

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**RESPONSE UNDER 37 C.F.R. 1.116  
EXPEDITED PROCEDURE  
EXAMINING GROUP 2814**

Attorney Docket No. 5649-1194

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re: Se-ho Lee  
Serial No.: 10/692,578  
Filed: October 24, 2003  
For: PHASE CHANGEABLE LAYERS INCLUDING PROTRUDING  
PORTIONS IN ELECTRODES THEREOF

Confirmation No.: 9027

Examiner: Long Pham

Group Art Unit: 2814

December 15, 2006

Mail Stop AF  
Commissioner for Patents  
Box 1450  
Alexandria, VA 22313-1450

**REASONS IN SUPPORT OF APPLICANT'S  
PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Sir:

This document is submitted responsive to the Final Official Action mailed September 25, 2006 (the "Final Action") in support of the Pre-Appeal Brief Request for Review, which is being filed concurrently with a Notice of Appeal in compliance with 37 C.F.R. 41.31 and with the rules set out in the OG of July 12, 2005 for the New Appeal Brief Conference Pilot Program.

It is not believed that an extension of time and/or any additional fee(s) are required beyond those that may otherwise be provided for in documents accompanying this paper. In the event, however, that an extension of time is necessary to allow consideration of this paper, such an extension is hereby petitioned under 37 C.F.R. §1.136(a). Any additional fees believed to be due in connection with this paper may be charged to our Deposit Account No. 50-0220.

**REMARKS**

Applicant hereby requests a Pre-Appeal Brief Review (hereinafter "Request") of Claims 1, 3, and 24, that were finally rejected in the Final Action, by an Appeal Conference prior to the filing of an Appeal Brief. In the interest of brevity, and without waiving the right to argue additional grounds should this request be denied, Applicant will point out some of the essential errors in the Final Action.

The claims relate to the structures associated with phase changeable memories including a bottom electrode having a recess therein . . . and a phase changeable layer in the recess. Embodiments according to the invention are illustrated, for example, in Figures 11 and 12, where a recess is formed in the bottom electrode 52 and the phase changeable layer 62 is formed in the recess so that a portion of the phase changeable layer protrudes into the bottom electrode beyond the boundary (between the bottom electrode and the interlayer dielectric) where the phase changeable layer contacts the bottom electrode within the confines of the recess.

In contrast, as shown in the Figures in Doan, the conductive layer 102 (alleged to disclose the recited bottom electrode of the independent claims) **does not include a recess therein**. To the contrary, as shown for example in Figure 18, the recess is above the conductive layer 102 and, therefore, **does not disclose a recess in the bottom electrode**, as shown for example, in Figure 9 of the present application. Referring to Figure 9 of the present application, the recess in the bottom electrode 52 is formed so that the void extends beyond the insulating layer 54 into the bottom electrode 52 so that **the recess is within the bottom electrode 52**. In other words, Doan shows that the height of the conductive layer 102 is reduced, but does not show a recess is **in the conductive layer 102**. Accordingly, Doan does not disclose a "bottom electrode having a recess therein" as recited in independent Claims 1 and 24.

This is in contrast to the comments in the Final Action regarding Applicant's remarks in the Amendment filed June 30, 2006:

In response to the arguments in the bottom paragraph on page 7 and the first paragraph on page 8 of the amendment dated 07/03/06, it is submitted that fig. 20 of Doan shows bottom electrode 102 having a recess (a space in 164 where phase chargeable layer is located) or a recess is in the bottom electrode. **Further, it is submitted that rejected claims do not require the recess is formed within the bottom electrode.** *Final Official Action, page 3.* [emphasis added]

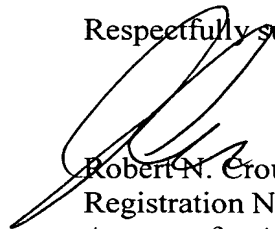
Respectfully, as shown above, the independent Claims do in-fact recite that the bottom electrode has a recess therein contrary to the above assertions taken from the Final Action.

Furthermore, independent Claim 24 includes the additional recitation that "the bottom electrode defines a sidewall of the recess that contacts the protruding portion

In re: Se-ho Lee  
Serial No.: 10/692,5784  
Filed: October 24, 2003  
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of the phase changeable layer," which is not disclosed by Doan. Accordingly, Claim 24 is patentable for at least the additional reason that Doan does not disclose that the bottom electrode defines a sidewall of the recess that contacts the protruding portion of the phase changeable layer. Accordingly, Applicant respectfully requests pre-appeal brief review of the present application and that the rejections be reversed by the pre-appeal review panel prior to the filing of an Appeal Brief.

Respectfully submitted,

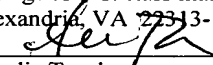


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Amelia Tauchen